WHAT IS CLAIMED IS:

1. A method for performing layer extraction from multiple images containing reflections and transparencies, comprising:

computing a primary motion estimate;

estimating a primary layer associated with the primary motion estimate;

computing a secondary motion estimate;

estimating a secondary layer associated with the secondary motion estimate; and

iteratively refining lower and upper bounds on the primary and secondary layers to estimate the layers.

2. The method of claim 1, further comprising improving the motion estimates using motion re-estimation.

3. The method of claim 1 further comprising stabilizing the images with respect to the primary layer.

4. The method of claim 3, further comprising aligning the images against a current min-composite and computing a difference image calculation between the stabilized images and the min-composite to produce the initial layer estimate.

5. The method of claim 1, wherein estimating the layers includes using constrained least squares to optimally recover the layer images.

6. The method of claim 3, wherein iteratively refining includes recovering the primary layer and the secondary layer of the images.

7. The method of claim 1, wherein the multiple images form a video sequence containing reflections and transparencies.

8. The method of claim 1, wherein computing a primary motion estimate includes computing a dominant motion for the sequence using image alignment against a current min-composite, estimating a primary layer includes computing a difference image calculation between stabilized images and the min-composite and computing a secondary motion estimate includes computing non-dominant motion by aligning the difference image calculation with a max-composite of the images.

9. The method of claim 8, further comprising using initial layer estimates of the dominant and non-dominant motion estimates and improving the motion estimates using motion re-estimation and computing unconstrained least-squares as an initial value and using positivity constraints to solve a quadratic related to the layer extraction.

10. The method of claim 5, further comprising alternating the least-squares optimization of layer values with motion re-estimation.

11. The method of claim 10, further comprising computing the unconstrained least-squares solution and using the result of the least squares computation as the initial value and solving the quadratic-programming problem with positivity constraints.

12. A computer-readable medium having computer-executable instructions for performing the method recited in claim 1.

13. A method for estimating upper and lower bounds of a sequence of

images for extraction of the images, comprising:

aligning the images of the sequence against a current minimum composite;

computing a difference image calculation between the images and the minimum composite; and

aligning the difference image calculation with a maximum composite of the images.

14. The method of claim 13, further comprising continually performing the method a predefined amount to iteratively refine lower and upper bound parameters of the images.

15. The method of claim 13, computing unconstrained least-squares as an initial value and using positivity constraints to solve a quadratic related to the extracted images.

16. A computer-readable medium having computer-executable instructions for performing the method recited in claim 13.

17. A constrained least-square method for recovering image components extracted after processing a sequence of the images and determining motion parameters, comprising:

using the known motion parameters to compute a preconditioned conjugate gradient without constraints to determine gradient parameters; and

estimating the components based on the gradient parameters.

18. The method of claim 17, using positivity constraints to solve a quadratic related to the extracted images.

19. The method of claim 18, wherein the motion parameters are

determined by computing a dominant motion for the sequence using image alignment against a current min-composite;, computing a difference image calculation between stabilized images and the min-composite; and computing non-dominant motion by aligning the difference image calculation with a max-composite of the images.

20. A computer-readable medium having computer-executable instructions for performing the method recited in claim 17.